

AMENDMENTS TO THE CLAIMS

Listing of claims:

1. (Currently Amended) A method for migration between a permanent connection and a switched connection in a transmission network, the method comprising:

a) after receiving a first message of connection migrating request, ~~forwarding~~sending, by an ingress node of a current connection, ~~the~~a second message of the connection migrating request node by node in a direction of traffic signal transmission of the current connection starting from the ingress node until an egress node of the current connection; ~~the message being signaling, comprising the connection migrating request, and is transmitted on a control plane;~~ and

b) making migration between the permanent connection and the switched connection node by node after receiving the second message of the connection migrating request,

wherein the step of sending the second message of the connection migrating request and the step of making the migration are performed by a control plane of a node and the second message of the connection migrating request is transferred via a plurality of control links, and

wherein a migration from the permanent connection to the switched connection in the step of making the migration between the permanent connection and the switched connection comprises: creating a state of the switched connection on the control plane of the node and handing over cross-connections of the permanent connection at node to the control plane.

2. -- 3. (Canceled)

4. (Currently Amended) The method according to claim 2, A method for migration between a permanent connection and a switched connection in a transmission network, the method comprising:

a) after receiving a first message of connection migrating request, sending, by an ingress node of a current connection, a second message of the connection migrating request node by node in a direction of traffic signal transmission of the current connection starting from the ingress node until an egress node of the current connection; and

b) making migration between the permanent connection and the switched connection node by node after receiving the second message of the connection migrating request,

wherein the step of sending the second message of the connection migrating request and the step of making the migration are performed by a control plane of a node and the second message of the connection migrating request is transferred via a plurality of control links, and

wherein a migration from the switched connection to the permanent connection in the step of making the migration between the permanent connection and the switched connection comprises: deleting a state of the switched connection from the control plane of the node and handing over cross-connections of the switched connection at the node to a management plane.

5. (Currently Amended) The method according to claim 2/claim 1, wherein the control plane is based on Transmission Control Protocol (TCP)/Internet Protocol (IP)-protoeel, and the step of making the migration between the permanent connection and the switched connection is implemented by using the Resource Reservation Protocol-Traffic Engineering (RSVP-TE) signaling protocol or the Constraint-based Routing Label Distribution Protocol (CR-LDP) signaling protocol.

6. (Currently Amended) The method according to claim 1, wherein the migration between the permanent connection and the switched connection node by node in the step b) comprises:

making the migration between the permanent connection and the switched connection node by node starting from the egress node until the ingress node in a reversed direction of a ~~forwarding~~sending path of the second message of the connection migrating request after the second message of the connection migrating request reaches the egress node.

7. (Currently Amended) The method according to claim 6, further comprising:

each node, after completing the migration, sending a message of migration completing notification to a next node required to make the migration until the ingress node, which sends the message of the migration completing notification to an initiator of the connection migrating request.

8. (Currently Amended) The method according to claim 1, wherein the migration between the permanent connection and the switched connection node by node in the step b) comprises:

making the migration between the permanent connection and the switched connection by the ingress node after receiving the first message of the connection migrating request; and

each node making the migration between the permanent connection and the switched connection by each of the other nodes after receiving the second message of the connection migrating request.

9. (Currently Amended) The method according to claim 8, further comprising:

after all nodes complete the migration, forwarding the message of the migration completing notification node by node starting from the egress node till the ingress node in the reversed direction of the forwarding~~sending~~ path of the second message of the connection migrating request, and the ingress node sending the message of the migration completing notification to an initiator of the connection migrating request.

10. (Currently Amended) The method according to claim 7, wherein the message of the migration completing notification comprises routing information of an entire connecting link of the migration.

11. (Canceled)

12. (Currently Amended) The method according to claim 1, wherein the first message of the connection migrating request received by the ingress node comprises:

an ingress node identifier and incoming port information of the ingress node of the connection currently requested to be migrated, or the ingress node identifier and outgoing port information of the ingress node of the connection currently requested to be migrated, and each node adds its own outgoing port information to the second message of the connection migrating request before forwarding~~sending~~ the second message.

13. (Currently Amended) The method according to claim 12, wherein [L] in the step of ~~forwarding sending the second message of the connection migrating request by each node, the outgoing port information from a present node to a next node is added to the second message of the connection migrating request if the second message includes the incoming port information; and~~

~~wherein the incoming port information from the present node to the next node is added to the second message of the connection migrating request if the second message includes the outgoing port information.~~

14. (Currently Amended) The method according to claim 12, wherein the incoming port information comprises an identifier of the incoming port, or an identifier of the incoming channel, or the combination thereof; and

~~wherein the outgoing port information comprises an identifier of the outgoing port, or an identifier of the outgoing channel, or the combination thereof.~~

15. (Previously Presented) The method according to claim 12, wherein the outgoing port information of the node is obtained by inquiring cross-connection information stored in the node itself based on the incoming port information of the current node.

16. (Currently Amended) The method according to claim 12, further comprising before the ingress node makes the migration between the permanent connection and the switched connection:

deciding whether the ingress node identifier and incoming port information or the ingress node identifier and outgoing port information contained in the received first message of the connection migrating request is correct or not, if yes, making the migration, otherwise returning a message of failure.

17. (Currently Amended) The method according to claim 12, wherein the first message of the connection migrating request received by the ingress node further comprises:

an egress node identifier, or the egress node identifier and outgoing port information at the egress node of the current connection requested to be migrated.

18. (Currently Amended) The method according to claim 17, further comprising before the egress node makes the migration between the permanent connection and the switched connection:

deciding whether the egress node identifier or the egress node identifier and outgoing port information contained in the received second message of the connection migrating request is correct or not, if yes, creating or deleting the switched connection at the node, otherwise returning a message of failure.

19. (Currently Amended) The method according to claim 1, wherein if the migration between the permanent connection and the switched connection is a migration from the switched connection to the permanent connection, the first message of the connection migrating request received by the ingress node comprises:

an identifier of a current switched connection.

20. (Previously Presented) The method according to claim 1, wherein the connection is a uni-directional connection or a bi-directional connection.

21. (Currently Amended) The method according to claim 1, wherein the switched connection is a soft permanent connection initiated by a network management system or a switched connection initiated by a client device or a proxy thereof.

22. (Previously Presented) The method according to claim 1, wherein the transmission network is a Synchronous Digital Hierarchy, or a synchronous optical network, or a wavelength switched network, or an Optical Transport Network (OTN).

23. (New) The method according to claim 1, wherein if the first message of the connection migrating request is sent from a network management system, the first message of the connection migrating request is a command; if the first message of the connection migrating request is sent from a client device, the first message of the connection migrating request is a signaling; and

wherein the second message of the connection migrating request is a signaling.

24. (New) The method according to claim 4, wherein the control plane is based on TCP/IP protocol, and the step of making the migration between the permanent connection and the switched connection is implemented by using RSVP-TE signaling protocol or CR-LDP signaling protocol.

25. (New) The method according to claim 4, wherein the migration between the permanent connection and the switched connection node by node in the step b) comprises:

making the migration between the permanent connection and the switched connection node by node starting from the egress node until the ingress node in a reversed direction of a sending path of the second message of the connection migrating request after the second message of the connection migrating request reaches the egress node.

26. (New) The method according to claim 25, further comprising:

each node, after completing the migration, sending a message of migration completing notification to a next node required to make the migration until the ingress node, which sends the message of the migration completing notification to an initiator of the connection migrating request.

27. (New) The method according to claim 4, wherein the migration between the permanent connection and the switched connection node by node in the step b) comprises:

making the migration between the permanent connection and the switched connection by the ingress node after receiving the first message of the connection migrating request;

making the migration between the permanent connection and the switched connection by each of the other nodes after receiving the second message of the connection migrating request.

28. (New) The method according to claim 27, further comprising:

after all nodes complete the migration, forwarding the message of the migration completing notification node by node starting from the egress node till the ingress node in the reversed direction of the sending path of the second message of the connection migrating request, and the ingress node sending the message of the migration completing notification to an initiator of the connection migrating request.

29. (New) The method according to claim 26, wherein the message of the migration completing notification comprises routing information of an entire connecting link of the migration.

30. (New) The method according to claim 26, wherein the message of the migration completing notification comprises an identifier of a current switched connection if the migration between the permanent connection and the switched connection is the migration from the switched connection to the permanent connection.

31. (New) The method according to claim 4, wherein the first message of the connection migrating request received by the ingress node comprises:

an ingress node identifier and incoming port information of the ingress node of the connection currently requested to be migrated, or the ingress node identifier and outgoing port information of the ingress node of the connection currently requested to be migrated, and each node adds its own outgoing port information to the second message of the connection migrating request before sending the second message.

32. (New) The method according to claim 31, wherein in the step of sending the second message of the connection migrating request by each node, the outgoing port information from a present node to a next node is added to the second message of the connection migrating request if the second message includes the incoming port information; and

wherein the incoming port information from the present node to the next node is added to the second message of the connection migrating request if the second message includes the outgoing port information.

33. (New) The method according to claim 31, wherein the incoming port information comprises an identifier of the incoming port, or an identifier of the incoming channel, or the combination thereof; and

wherein the outgoing port information comprises an identifier of the outgoing port, or an identifier of the outgoing channel, or the combination thereof.

34. (New) The method according to claim 31, wherein the outgoing port information of the node is obtained by inquiring cross-connection information stored in the node itself based on the incoming port information of the current node.

35. (New) The method according to claim 31, further comprising before the ingress node makes the migration between the permanent connection and the switched connection:

deciding whether the ingress node identifier and incoming port information or the ingress node identifier and outgoing port information contained in the received first message of the connection migrating request is correct or not, if yes, making the migration, otherwise returning a message of failure.

36. (New) The method according to claim 31, wherein the first message of the connection migrating request received by the ingress node further comprises:

an egress node identifier, or the egress node identifier and outgoing port information at the egress node of the current connection requested to be migrated.

37. (New) The method according to claim 36, further comprising before the egress node makes the migration between the permanent connection and the switched connection:

deciding whether the egress node identifier or the egress node identifier and outgoing port information contained in the received second message of the connection migrating request is correct or not, if yes, creating or deleting the switched connection at the node, otherwise returning a message of failure.